

REMARKS

This application has been carefully reviewed in light of the Office Action dated March 22, 2005. Claims 1-2, 4-17, and 19-35 are pending in the application, and Claims 1-2, 4-17, and 19-35 have been rejected. Favorable reconsideration is respectfully requested.

By this Response and Amendment, Claims 12 and 28 have been cancelled, and Claims 1, 19, and 25 have been amended. No new matter has been added.

In view of the amendments above and remarks below, Applicants respectfully request reconsideration and further examination.

The present invention relates generally to methods and apparatus for detecting irradiation of a circuit, and for preventing the irradiation from causing a breach of security. The present invention more particularly relates to including a bipolar transistor photo-detector disposed in the substrate of a chip at the same level, or plane, in which the data and circuits that require protection are located. In this way, detection is provided not only from front side irradiation, but also from backside irradiation through the semiconductor substrate in which the circuits and photo-detectors are located. By locating the bipolar photo-detectors at the same position in the substrate as the circuits and data needing protection, detection of an irradiation condition is made at the same time at which the other circuits are being exposed rather than afterward, as would be the case with surface mounted irradiation detectors when the backside of the chip is irradiated.

Claims 1-2, 4-17, and 19-35 have been rejected under 35 USC §103(a) as being unpatentable over Schrenk (US Patent 4,910,707; hereinafter "Schrenk"), in view of Berger, et al., (US Patent 5,225,706; hereinafter "Berger") and Hayami, et al., (US Patent 6,426,495; hereinafter "Hayami"). Applicants respectfully traverse the above rejection for at least the following reasons.

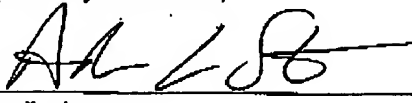
By this amendment, Claims 12 and 28 have been cancelled, thereby rendering moot the rejection of Claims 12 and 28.

Schrenk in view of Berger and Hayami fail to suggest, teach, or recite the limitation of a "working point of the detector unit or a threshold value of the reference voltage is adjustable," as recited in Applicants' Claims 1, 19, and 25. This adjustable aspect allows for greater use and flexibility with comparator 20 in determining when to allow protection of the chip arrangement. See Written Description, page 7, lines 9-11. Applicants respectfully submit that the cited references do not appear to provide this teaching, nor do they provide a suggestion or motivation for such an arrangement. Thus Applicants respectfully traverses the §103(a) rejections of Claims 1, 19, and 25 over Schrenk in view of Berger and Hayami, because the references fails to recite, teach, or suggest every limitation of Applicants' Claims 1, 19, and 25.

In view of the foregoing, Applicants respectfully submit that the rejection of Claims 1, 19, and 25 has been overcome. Similarly, Applicants submit that the rejection of Claims 2, 4-11, 13-17, 20-24, 26-27, and 29-35, which depend respectively from amended Claims 1, 19, and 25, has been overcome.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the currently pending claims are clearly patentably distinguishable over the cited and applied references. Accordingly, entry of this amendment, reconsideration of the rejections of the claims over the references cited, and allowance of this application is earnestly solicited.

Respectfully submitted,

By   
Adam L. Stroud,  
Reg. No. 48,410  
Attorney  
(408) 474-9064  
September 21, 2005